

Although she's stepped down from the co-directorship of the University of Minnesota's Water Resources Center (WRC), don't expect Deb Swackhamer to fade away. She remains a University professor of science technology and environmental policy at the Humphrey School of Public Affairs, a professor of environmental health sciences with the School of Public Health and leaves a legacy of water protection literally, on the books.

- [Teacher at Sea sonar mapping voyage sends environmental educator John Bilotta to the bottom of the ocean and into experiential learning](#)

When John Bilotta set sail aboard the Nancy Foster on June 17 as part of NOAA's (National Oceanic and Atmospheric Administration) Teacher at Sea project he was eager to apply his teaching mantra of "see, touch and smell" to his own education. "I spend so much time talking and teaching about the oceans that I was just excited to apply that philosophy to my own learning."

News

- [Fall 2014 CrossCurrents - Links to other water-based websites](#)
- [Fall 2014 Community News](#)
- [Fall 2014 Student News](#)
- [Fall 2014 Resources and Publications](#)
- [Fall 2014 Upcoming Events](#)

Minnegram

- [Minnegram Spring 2015](#)
- [Minnegram Winter 2015](#)
- [Minnegram Fall 2014](#)
- [Minnegram Summer 2014](#)
- [Minnegram Spring 2014](#)

- [Minneagram Winter 2014](#)
- [Minneagram Fall 2013](#)
- [Minneagram Summer 2013](#)
- [Minneagram Spring 2013](#)
- [Minneagram Winter 2013](#)
- [Minneagram Fall 2015](#)
- [Minneagram Fall 2016](#)
- [Minneagram Spring 2016](#)
- [Minneagram Summer 2015](#)
- [Minneagram Summer 2016](#)
- [Minneagram Summer 2017](#)
- [Minneagram Winter 2016](#)
- [Minneagram Winter 2017](#)

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).

Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

© 2018 Regents of the University of Minnesota. All rights reserved. The University of Minnesota is an equal opportunity educator and employer. [Privacy Statement](#)

[Report Disability-Related Access Issue](#)

As Deb continues her journey into retirement, this is a very small example of the impact she has had as Co-director of the Water Resources Center, professor and researcher over these many years, as you will see in the article. We look forward to Deb engaging in ways that are fulfilling to her within the water resources community.



Interim Director, Water Resources Center

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).

Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

© 2018 Regents of the University of Minnesota. All rights reserved. The University of Minnesota is an equal opportunity educator and employer. [Privacy Statement](#)

[Report Disability-Related Access Issue](#)

Home

Menu

Shortcuts

hans2888

My Workbench

Content

Panopoly

Structure

?

Help

UNIVERSITY OF MINNESOTA

Driven to DiscoverSM

One Stop MyU : For Students, Faculty, and Staff

Water Resources Center

Facebook

Twitter

Print

Email

Addthis

About Us

Our Work

Training

News/Events

Publications

Division Water Resources

WRS Graduate Program

Water Topics

new

Edit

Revisions

Nodequeue

Convert

Customize display

Minnesota Water Resources Conference returns to the banks of the Mississippi River

New at the conference this year is the Guidebook Mobile App which will help attendees plan their days at the conference, with a personalized schedule and browse concurrent session and poster abstracts, presenter biographies, exhibitors, maps. Also new are vendor exhibits, a Low Impact Development and Stormwater Management Workshop, and an extended session within the program.

Plenary and luncheon speakers are:



Paul Douglas, Total Weather, LLC. Climate Impacts on Water Resources. Minnesota's first Certified Broadcast Meteorologist with a meteorology degree from Penn State, Douglas has spent 33 years in broadcasting, radio, television, web production, print and reporting. Although Douglas grew up in Pennsylvania, he has spent nearly his entire career in the Twin Cities of Minnesota, 11 years at KARE11, another 11 years at WCCO-TV. In addition to three years at WBBM-TV in Chicago, Douglas has appeared on ABC Nightline, the CBS Evening News with Dan Rather.

Craig Cox, senior vice president for agriculture and Natural Resources at the Environmental Working Group. Farming and Clean Water: Still Such a Long Way to Go. Cox began his career in conservation by joining the Minnesota Department of Natural Resources in 1977 as a field biologist. Since then, he has worked for the National Academy of Sciences, the Senate Committee on Agriculture, Nutrition and Forestry, the U.S. Department of Agriculture, and as Executive Director of the Soil and Water Conservation Society. He joined EWG in 2008 and leads the organization's research and advocacy work in agriculture, renewable energy, and climate change. He also directs EWG's Midwest Office in Ames, Iowa. He has degrees in wildlife ecology and agricultural economics from the University of Minnesota.



https://www.wrc.umn.edu/publications/minnegram/fall-2014/conference-returns[2/1/2018 2:20:45 PM]



Peter Sorensen, founder and researcher at the Minnesota Aquatic Invasive Species Research Center. Carp: Biology and Politics. Sorensen received a B.A. from Bates College and developed his love of research at the University of North Wales and the Woods Hole Oceanographic Institute. In 1984, he earned a Ph.D. in Biological Oceanography from the University of Rhode Island for his discovery that compounds derived from stream microbes direct the migration of larval eels. Sorensen accepted a position at the University of Minnesota in 1988 to study fish behavior, olfaction, and physiology. His position is based in the Department of Fisheries, Wildlife, and Conservation Biology; and he has graduate appointments in Conservation Biology, Ecology, Evolution & Behavior, Neuroscience, and Water Resources Science. Peter is enthusiastic to work with students on projects involving any topic that addresses fish behavior, physiology, and chemoreception.

Janet Keough, Associate Director for Science, Environmental Protection Agency, Office of Research and Development NHEERL Mid-Continent Ecology Division.

The Minnesota Water Conference is sponsored by the Water Resources Center and the College of Continuing Education, University of Minnesota, and co-sponsored by the Department of Civil, Environmental, and Geo-Engineering, College of Science and Engineering, University of Minnesota, Minnesota Section, American Society of Civil Engineers Minnesota Sea Grant College Program, University of Minnesota and the Natural Resources Research Institute, University of Minnesota.

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).

Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

© 2018 Regents of the University of Minnesota. All rights reserved. The University of Minnesota is an equal opportunity educator and employer. [Privacy Statement](#)

[Report Disability-Related Access Issue](#)

Addthis

Three years later, she was approached by University administration about the co-directorship of the Water Resources Center. It turned out to be the perfect fit for the University and for Swackhamer. “It was the best of all the worlds,” she says. “I

could teach and conduct research while learning the administrative ropes."

Recruited by the University's Senior Vice President of Academic Affairs and Provost E. Thomas Sullivan in 2006 to oversee the master plan of the University's fledgling Institute on the Environment (IonE), Swackhamer accepted an 18-month leave from WRC to co-chair the committee to design IonE's blueprint and serve as its interim director.

The experience was rewarding for Swackhamer, the University, and the state. "I learned how to work with University's central administration—its budgeting, alumni and legislative offices, and really learned how the world of water resource and science policy fit into it," she says.

Swackhamer returned to the WRC co-directorship with the connections and know-how to push forward on big-picture ideas. The experience also sharpened her already polished ability to communicate to a wide range of audiences and help build WRC into an exemplary member of the National Institutes for Water Resources.

During her tenure with the Water Resource Center, Swackhamer became one the University's most sought-after water experts to key legislators in Minnesota and in Washington D.C. and a well-known voice on water issues to the general public via the media. After one particularly engaging interview on WCCO AM, host and noted environmentalist Don Shelby offered his help in getting Swackhamer her own radio show. She laughs, "I know he was kidding, still, it was all very flattering."

"I didn't think she thought I was serious, but I was," says Shelby. "And if she had agreed, I would have fought to have gotten her a program. Frankly, I had never heard anyone so skilled at making complicated public policy issues and very dense science completely understandable. She didn't speak in jargon, she spoke in people-talk, and she never insulted the audience by trying to oversimplify. I still think people need to hear the facts—and Deb knows the facts."

In 2008, she was called upon by the Minnesota Legislature to serve as lead author of the Minnesota Statewide Conservation and Preservation Plan commissioned by the Minnesota Legislature. The comprehensive plan is still used as a resource and a roadmap for the Lessard-Sams Outdoor Heritage Council, as well as for the Minnesota Department of Natural Resources and other environmental organizations.

The plan became a stepping-stone to the Minnesota Water Sustainability Framework (MWSF), a groundbreaking document that Swackhamer views as one of her greatest accomplishments. Commissioned by the 2009 Minnesota Legislature and funded by the Clean Water Fund, the MWSF charts a legislative and policy-maker's roadmap for future investment in Minnesota's water resources. As lead author of the MWSF, Swackhamer was a something of an orchestra conductor managing the interests of more than 250 project partners/stakeholder from throughout the state. She coaxed and coalesced opinions and best practices from voices throughout the state. "There's been significant advancement on the framework itself—and its heartening how many of the its individual recommendations have been put into place."

Among Swackhamer's many awards are the University's Ada Comstock Scholar Award, the University's highest award for female faculty, and the Founders Award from the international Society of Environmental Toxicology and Chemistry for lifetime achievement in environmental sciences.

As an instructor, Swackhamer consistently receives high marks from her current and former students, many of whom are

employed in federal and state agencies, industry, and academia. That includes Roger Pearson, vice president for research and development at Maple Grove-based Aspen Research Corporation and one of Swackhamer's former Ph.D. students. "Deb was one of the professors I respected the most—from her teaching style to her dedication to learning more at all times in her chosen field," says Pearson. "At the end of the many research studies, we spent endless hours crafting articles for submission to peer reviewed journals. I believe it was her tireless editing and insistence on perfection that resulted in our getting a comment by one reviewer who wrote, 'your manuscript is extremely long, but I can find no way to remove anything from the text.' The most valuable lesson she taught us...Science is of no use to anyone if it is not communicated clearly and understandably. That lesson has served me well across all of my professional endeavors."

Along the way, Swackhamer was appointed chair of the U.S. Environmental Protection Agency's Science Advisory Board, served on the Advisory Board of the US-Canadian International Joint Commission, elected president of the National Institutes of Water Resources in 2011, and appointed to the University's prestigious Charles M. Denny Jr. Chair in Science, Technology and Public Policy, housed in the Humphrey School of Public Affairs. Says Humphrey School Dean Eric Schwartz: "The Humphrey School was very fortunate to have Deb as our Denny Chair in Science, Technology and Public Policy. She is the model of an engaged scholar and someone who has provided enormous expertise and guidance to policy-makers at the regional and national levels to promote the common good in a diverse world."

Swackhamer currently serves on the U.S. Health Effects Institute Committee on National Research Strategy for Unconventional Oil and Gas Extraction, as well as on environmental advisory boards with Minnesota's Clean Water Council and environmental boards at University of Michigan and Clemson University. She leaves the WRC hopeful for Minnesota's water future and for the University's role in it.

"People in every corner of the state are consistently grateful for WRC's help," says Swackhamer. "Water is a major issue to Minnesota's citizens, politicians, and decision makers. If I've lobbied for anything in my career, it was for our waters, and the environment as a whole."



Swackhamer grew up in Whitehouse Station New Jersey,

in an educated household in which there were “no boring discussions.”

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).
Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

Home

Menu

Shortcuts

hans2888

My Workbench

Content

Panopoly

Structure

Help

University of Minnesota

Driven to DiscoverSM

One Stop

MyU

: For Students, Faculty, and Staff

Water Resources Center

Facebook

Twitter

Print

Email

Addthis

About Us

Our Work

Training

News/Events

Publications

Division Water Resources

WRS Graduate Program

Water Topics

new

Edit

Revisions

Nodequeue

Convert

Customize display

Teacher at Sea sonar mapping voyage sends environmental educator John Bilotta to the bottom of the ocean and into experiential learning

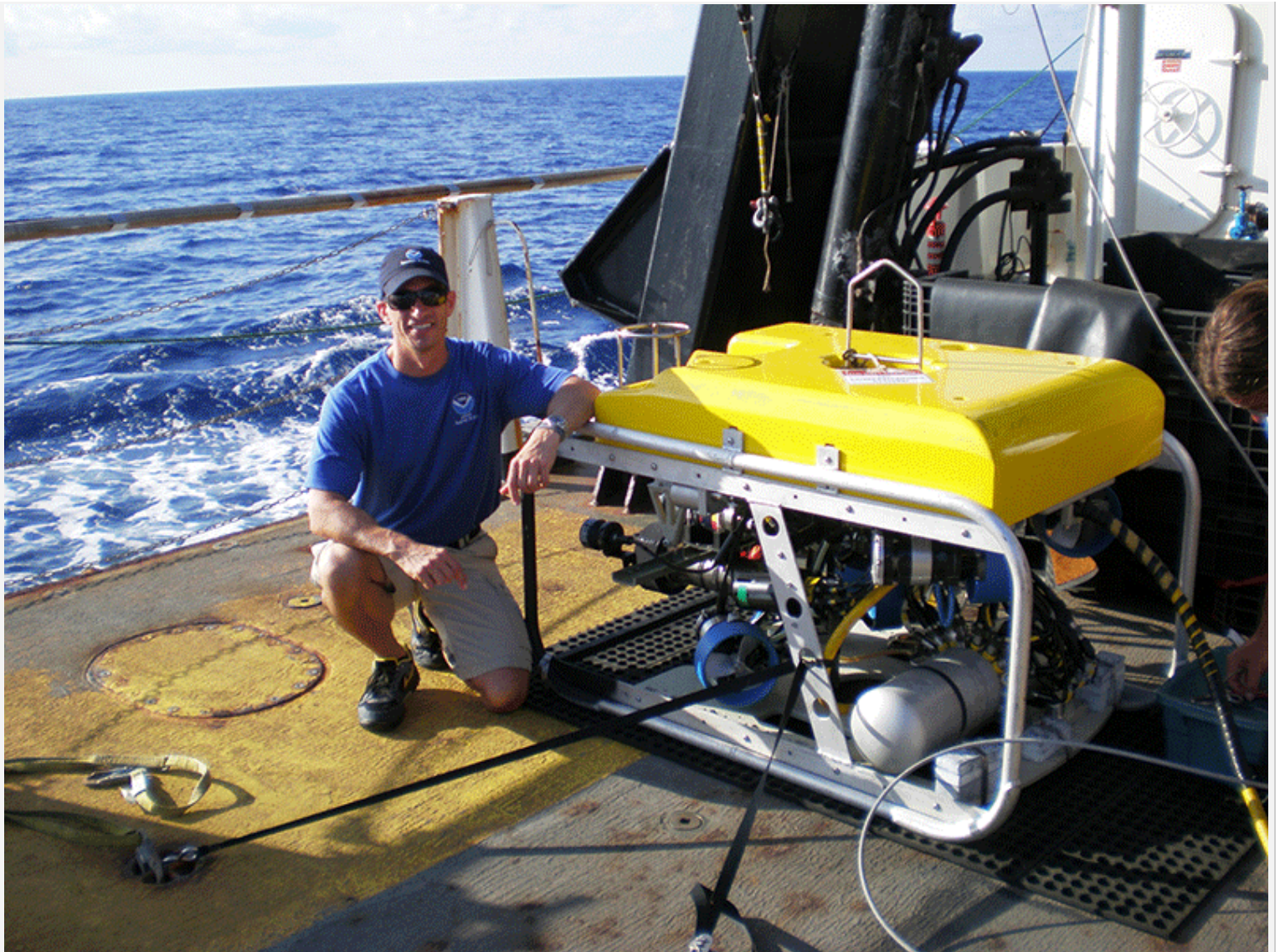
Bilotta was one of 18 environmental teachers selected in a nation-wide search by NOAA to participate in the sonar mapping of Marine Protected Areas (MPAs) in the South Atlantic Ocean. Scientists are concerned about the health of oceanic habitat of the grouper and tilefish, considered at risk due to low population and overfishing. Information gathered by the Nancy Foster crew will provide a picture of how effective MPA management is in protecting habitat and fisheries between Port Canaveral, Florida and Cape Hatteras, North Carolina. Multibeam sonar sensors create detailed maps of the ocean floor, to guide Remotely Operated Vehicles (ROV) outfitted with multiple cameras and measuring equipment as they record the terrain of the ocean floor. A team of researchers identified and recorded the information sent back to the surface from the ROVs, to measure the effectiveness of current habitat management efforts in MPAs.

Over the next year, the scientists will study the observations of the sea life and habitat retrieved from the ROVs and the resulting report will guide the management plan of the South Atlantic Fishery Management Council, which oversees commercial and recreational fishing in the area.

As for Bilotta, who is director and an instructor at Earth Adventure, he hopes to bring his adventures at the bottom of the Atlantic home to his Earth Balloon classroom. He will also apply lessons learned to Nemo's watershed game which he presents to civic leaders to generate ideas for stormwater management and pollution prevention strategies.

"It's up on the land where we as humans often have the greatest impact that ultimately impact oceans, lakes, and rivers. The aspiration of my teaching is that we can minimize those impacts through increased knowledge and awareness. My Teacher at Sea experience has given me new perspectives and tools that I can use in all my teaching venues."

https://www.wrc.umn.edu/publications/minnegram/fall-2014/bilotta-bottom[2/1/2018 2:21:49 PM]



The remote operating vehicle pictured here with Bilotta is equipped with a full spectrum camera, a digital camera, and lasers which allow scientists to measure objects on the ocean floor.

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).

Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

© 2018 Regents of the University of Minnesota. All rights reserved. The University of Minnesota is an equal opportunity educator and employer. Privacy Statement
Report Disability-Related Access Issue

Home
 Menu
 Shortcuts
 hans2888

My Workbench
 Content
 Panopoly
 Structure
 Help

UNIVERSITY OF MINNESOTA
 Driven to DiscoverSM

One Stop MyU : For Students, Faculty, and Staff

Water Resources Center

[Facebook](#)
[Twitter](#)
[Print](#)
[Email](#)
[Addthis](#)

[Home](#)
[About Us](#)
[Our Work](#)
[Training](#)
[News/Events](#)
[Publications](#)

[Division Water Resources](#)
[WRS Graduate Program](#)
[Water Topics](#)

[New](#)
[Edit](#)
[Revisions](#)
[Nodequeue](#)
[Convert](#)
[Customize display](#)

Fall 2014 Community News

Larry Baker (WRS faculty, BBE) has been appointed to the Environmental Protection Agency's Board of Scientific Counselors' (BOSC) Safe and Sustainable Water Resources Subcommittee, effective September 4, 2014.

John Bilotta, (WRC, Sea Grant) participated in a National Oceanic and Atmospheric Administration (NOAA) research team project June 17–29, 2014 conducting Remotely Operated Vehicle (ROV) and multibeam sonar surveys inside and outside five marine protected areas in the south Atlantic to assess survey efficacy with respect to fisheries management. See the some of his findings here Bilotta also led two NEMO workshops on-the-water in July - providing training to elected and appointed leaders and community leaders on Lake Minnetonka and on the St. Croix River.

John Gulliver (WRS faculty, CE) received funding for two 319 projects from the MPCA/US EPA, Performance of an Agricultural Drainage Tile Filter and Internal Phosphorus Load Reduction with Iron Filings. In spring 2014, Gulliver presented Glsmos for Stormwater Treatment at Carnegie Mellon University and Villanova University. Gulliver also hosted two visiting professors in summer 2014, Masoud Kayhanian from the University of California-Davis and Peter Weiss from Valparaiso University.

Lucinda Johnson (WRS faculty, NRRI) was appointed in March 2014 to the International Joint Commission's Science Advisory Board to serve a three year term. Johnson will participate in the Science Policy Committee, which helps to identify upcoming challenges and review ongoing science issues facing the Great Lakes community as it implements the Great Lakes Water Quality Agreement. In Large Lake Observatory news: Blue Heron Captain Mike King has retired and the new Captain is Raul Lee. Contact Doug Ricketts if you want more information. Ricketts is also running a workshop next week for new investigators to coach them in the use of UNOLS vessels. LLO also announces Science Fridays, when the public will be invited to board and tour the Blue Heron research vessel and indulge in science. For dates and more information, visit: <http://www.d.umn.edu/llo/sciencefriday.html>

Robert Sterner (WRS faculty, EEB) has joined the University of Minnesota Duluth (UMD) as the new director of the Large Lakes Observatory (LLO) and member of the faculty in the UMD Department of Biology. "I've examined different aspects of carbon and nutrient cycles and over the years, and I've amassed a great deal of information about these basic ecosystem properties," he said. "The work continues to fascinate me, and I'm delighted to join the remarkable LLO team." Sterner also organized the 2014 Woodstoich workshop in Sydney, Australia, August 15-21. Woodstoich attracts early-career scientists interested in synthesizing or exploring promising connections between ecological stoichiometry and nutritional geometry, or the connections between either of these and other major ecological or evolutionary theories.

Deborah Swackhamer (WRS faculty, PH) participated in a panel discussion of Science and Policy at the Gordon Research Conference on Environmental Sciences: Water, June 23-27, Holderness, NH. Swackhamer also was an invited speaker at the ACS Meeting in San Francisco, CA, August 10-15, in a symposium on Women and Environmental Science. Swackhamer is currently a member of the Health Effects Institute's Committee on Development of Unconventional Oil and Gas that is crafting a research plan for the Marcellus Shale area. In August, Swackhamer was an external site visitor for the water programs at Penn State in August 2014.

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).

Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

© 2018 Regents of the University of Minnesota. All rights reserved. The University of Minnesota is an equal opportunity educator and employer. [Privacy Statement](#)

[Report Disability-Related Access Issue](#)

1 2014 Student News

Joshua Knopik received his MS Degree in May 2014. His thesis was titled: "Aquatic Macrophyte Response to Carp Removal and the Success of Transplanting Aquatic Macrophytes to Restore the Littoral Community." Knopik was advised by **Raymond Newman**.

Brent Mason received his MS Degree in May 2014. His thesis was titled: "Groundwater/Surface-water interactions down-gradient from a decades old crude oil spill." Mason's advisor was **Joe Magner**.

Gene-Hua Crystal Ng Assistant Professor, Department of Earth Sciences, is joining the WRS faculty. Ng has a PhD From: Massachusetts Institute of Technology (2008) and will teach ESCI 5205 Fluid Mechanics in Earth and Environmental Sciences

The Water Resources Center is a unit of the College of Food, Agricultural and Natural Resource Sciences and University of Minnesota Extension.

Water Resources Center | 173 McNeal Hall | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

Home
 Menu
 Shortcuts
 hans2888

My Workbench
 Content
 Panopoly
 Structure
 Help

UNIVERSITY OF MINNESOTA
Driven to DiscoverSM

One Stop MyU : For Students, Faculty, and Staff

Water Resources Center

[Facebook](#)
[Twitter](#)
[Print](#)
[Email](#)
[Addthis](#)

[About Us](#)
[Our Work](#)
[Training](#)
[News/Events](#)
[Publications](#)

[Division Water Resources](#)
[WRS Graduate Program](#)
[Water Topics](#)

[New](#)
[Edit](#)
[Revisions](#)
[Nodequeue](#)
[Convert](#)
[Customize display](#)

Fall 2014 Resources and Publications

Scaling up: *Fulfilling the promise of X-ray microprobe for biogeochemical research* Toner, B. M., S. L., Nicholas, and J. K. Coleman Wasik. 2014. *Environmental Chemistry* 11, 4-9

Biogeochemists measure and model fluxes of materials among environmental compartments, often considering large spatial-scales within and among ecosystems. However, critical biogeochemical processes occur at fine-spatial scales, and quantifying these processes is a challenge. Recent developments in microprobe X-ray absorption spectroscopy (XAS) data collection and analysis allow for micro-scale observations and quantification of chemical species at the sample-level. These speciation mapping methods create datasets that can be integrated with bulk observations through empirical and theoretical modeling.

SLICE: Sustaining Lakes in a Changing Environment is found on the Department of Natural Resources [website](#) which states the purpose of SLICE: To monitor and model Minnesota lake ecosystems for the detection and better understanding of the effects of environmental stressors in order to guide management that sustains fisheries and water resources for future generations.

***Development of Flood-Inundation Maps for the Mississippi River in Saint Paul, Minnesota* Christiana R. Czuba, James D. Fallon, Corby R. Lewis, and Diane F. Cooper**

Digital flood-inundation maps for a 6.3-mile reach of the Mississippi River in Saint Paul, Minnesota, were developed through a multi-agency effort by the U.S. Geological Survey in cooperation with the U.S. Army Corps of Engineers and in collaboration with the National Weather Service. The inundation maps, which can be accessed through the U.S. Geological Survey Flood Inundation Mapping Science Web site at http://water.usgs.gov/osw/flood_inundation/ and the National Weather Service Advanced Hydrologic Prediction Service site at <http://water.weather.gov/ahps/inundation.php>, depict estimates of the areal extent and depth of flooding corresponding to selected water levels (stages) at the U.S. Geological Survey streamgage at the Mississippi River at Saint Paul (05331000). The National Weather Service forecasted peak-stage information at the

streamgauge may be used in conjunction with the maps developed in this study to show predicted areas of flood inundation.

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).

Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

© 2018 Regents of the University of Minnesota. All rights reserved. The University of Minnesota is an equal opportunity educator and employer. [Privacy Statement](#)

[Report Disability-Related Access Issue](#)

Building Minnesota's Capacity for Climate Adaptation: Second Conference on Climate Adaptation

Hyatt Regency Minneapolis

Minneapolis, MN

The Water Resources Center is a unit of the [College of Food, Agricultural and Natural Resource Sciences](#) and [University of Minnesota Extension](#).

Water Resources Center | 173 [McNeal Hall](#) | 1985 Buford Avenue | St. Paul, MN 55108
612-624-9282 | umwrc@umn.edu

© 2018 Regents of the University of Minnesota. All rights reserved. The University of Minnesota is an equal opportunity educator and employer. [Privacy Statement](#)

[Report Disability-Related Access Issue](#)